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GOVERNOR



HAROLD LEGGETT, PH.D.
SECRETARY

State of Louisiana
DEPARTMENT OF ENVIRONMENTAL QUALITY
ENVIRONMENTAL SERVICES

Certified Mail No.

Agency Interest (AI) No. 1138
Activity No. PER20070006

Mr. John V. Casey
Operations Manager
PO Box 228
Geismar, LA 70734-0228

RE: Prevention of Significant Deterioration (PSD) Permit, PSD-LA-734 Westlake Vinyls Co LP
– Geismar Site VCM-E Plant
Westlake Vinyls Co LP, Geismar, Ascension Parish, Louisiana

Dear Mr. John V. Casey:

Enclosed is your permit, PSD-LA-734. Construction of the proposed project is not allowed until such time as the corresponding Part 70 Operating Permit is issued.

Should you have any questions, contact Anthony Randall of the Air Permits Division at (225) 219-3151.

Sincerely,

Cheryl Sonnier Nolan
Assistant Secretary

Date

CSN:ALR

c: US EPA Region VI

Agency Interest No. 1138

PSD-LA-734

**AUTHORIZATION TO CONSTRUCT AND OPERATE A MODIFIED MAJOR SOURCE
PURSUANT TO THE PREVENTION OF SIGNIFICANT DETERIORATION
REGULATIONS IN LOUISIANA ENVIRONMENTAL REGULATORY CODE,
LAC 33:III.509**

In accordance with the provisions of the Louisiana Environmental Regulatory Code, LAC 33:III.509,

Westlake Vinyls Co LP
PO Box 228
Geismar, LA 70734

is authorized to construct a new primary incinerator at the Westlake Vinyls Co LP – Geismar Site VCM-E Plant near

36045 Hwy 30
Geismar, LA 70734

subject to the emissions limitations, monitoring requirements, and other conditions set forth hereinafter.

This permit and authorization to construct shall expire at midnight on _____, 2010, unless physical on site construction has begun by such date, or binding agreements or contractual obligations to undertake a program of construction of the source are entered into by such date.

Signed this _____ day of _____, 2008.

Cheryl Sonnier Nolan
Assistant Secretary
Office of Environmental Services
Louisiana Department of Environmental Quality

BRIEFING SHEET

Westlake Vinyls Co LP – Geismar Site VCM-E Plant

Agency Interest No.: 1138

Westlake Vinyls Co LP

Geismar, Ascension Parish, Louisiana

PSD-LA-734

PURPOSE

To obtain a PSD permit for the Westlake Vinyls Co LP – Geismar Site VCM-E Plant.

RECOMMENDATION

Approval of the proposed construction and issuance of a permit.

REVIEWING AGENCY

Louisiana Department of Environmental Quality, Office of Environmental Services, Air Permits Division

PROJECT DESCRIPTION

Westlake Vinyls Company, LP (WVC) submitted a Part 70/Prevention of Significant Deterioration Air Permit Application to address the following:

1. Adding a new primary incinerator, EQT0126;
2. Replacing the existing secondary incinerator with the existing primary incinerator, EQT0127; and

The combined firing rate of the new primary incinerator with the existing primary incinerator will be increased to a total of 100 MMBtu/hr; whereas the combined firing rate is currently permitted at 67.7 MMBtu/hr. The new primary incinerator will use state-of-art technology including specially designed burner tips and will enhance the quality of products (VCM, HCl, and EDC) by ensuring continuous availability of an incinerator to control vent gas emissions.

Estimated emissions, in tons per year, are as follows:

<u>Pollutant</u>	<u>Baseline Actual Emissions</u>	<u>Project Increase/PTE</u>	<u>Contemporaneous Changes</u>	<u>Net Emissions Increase</u>	<u>PSD/NNSR de minimis</u>	<u>Review required?</u>
PM ₁₀	0.25	+0.92	-	+0.92	15/NA	No
SO ₂	0.02	+0.07	-	+0.07	40/NA	No
NO _x	3.31	+99.80	+16.40	+116.20	40/25	Yes
CO	2.78	+41.08	-	+41.08	100/NA	No
VOC	0.18	+11.40	-	+11.40	40/25	No

BRIEFING SHEET

Westlake Vinyls Co LP – Geismar Site VCM-E Plant

Agency Interest No.: 1138

Westlake Vinyls Co LP

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TYPE OF REVIEW

Nitrogen oxide (NO_x) emissions from the proposed major modification will be above PSD significance levels. Therefore, the requested permit was reviewed in accordance with PSD regulations for NO_x emissions. Emissions of LAC 33:III.Chapter 51-regulated toxic air pollutants (TAP) have been reviewed pursuant to the requirements of the Louisiana Air Quality Regulations.

BEST AVAILABLE CONTROL TECHNOLOGY

NO_x emissions are above PSD significance levels and must undergo PSD analyses. The selection of control technology was based on the BACT analysis using a “top down” approach and included consideration of control of toxic materials.

WVC will utilize good combustion practices and low NO_x burners (LNB) to control NO_x emissions to a degree equivalent to the Lowest Achievable Emission Rates (LAER) to fulfill BACT requirements of the PSD program.

AIR QUALITY IMPACT ANALYSIS

Prevention of Significant Deterioration regulations require an analysis of existing air quality for those pollutants emitted in significant amounts from a proposed major modification.

The PSD modeling consists of two separate phases, the PSD screening analysis (Significant Impact, Area of Impact, and Preconstruction Monitoring Analyses) and the full impact analysis (i.e., NAAQS and PSD Increment Analyses). The Significant Impact Analysis (SIA) determines the area of impact (AOI) associated with the facility emissions relative to the significant air quality levels. Once an AOI has been established, PSD Increment and NAAQS analyses are required to demonstrate that air quality concentrations are maintained in accordance with LDEQ and PSD mandated levels.

Based on the results for year 2001 (worst-case), the maximum annual off-site NO_x concentration is projected to be 2.28 µg/m³. This projected concentration is above the annual significance level for ambient NO_x concentration. Therefore, a full impacts analysis (i.e. NAAQS and PSD Increment modeling) is required. The AOI impact was determined to extend to approximately 0.9 km.

In addition to the project-related and contemporaneous NO_x emission sources, WVC NO_x emission sources not included in the PSD screening analysis and all major NO_x emission sources within the AOI plus 50 km were included in the subsequent NAAQS analysis. These sources were modeled at their maximum allowable emission rates.

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Westlake Vinyls Co LP – Geismar Site VCM-E Plant

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Based on the results for year 2002 being the worst-case, the maximum annual off-site NO_x concentration is projected as 89.61 µg/m³, which is below the NAAQS concentration threshold level of NO_x.

For the PSD Increment analysis, the same off-site sources were included in the models. However, with the exception of project related emission sources and proposed facility sources not yet built, the emission rates for the increment analysis are actual emission rates as opposed to maximum allowable emission rates. Based on the results for 2000 through 2004, the maximum annual off-site NO_x concentration is projected to be 0.00 µg/m³, which is below the PSD Increment threshold for NO_x.

In summary, the proposed project achieves compliance with all ambient air quality standards.

ADDITIONAL IMPACTS

Soils, vegetation, and visibility will not be adversely impacted by the proposed facility, nor will any Class I area be affected. The project will not result in any significant secondary growth effects.

PROCESSING TIME

Application Dated:	December 14, 2007
Application Received:	December 18, 2007
Additional Information Dated:	April 10, 2008, May 8, 2008, and May 22, 2008
Effective Completeness Date:	May 9, 2008

PUBLIC NOTICE

A notice requesting public comment on the proposed project was published in *The Advocate*, Baton Rouge, Louisiana, on <<Date>>, 200x; and in <<Local Paper>>, <<City>>, Louisiana, on <<Date>>, 200x. Copies of the public notice were also mailed to individuals who have requested to be placed on the mailing list maintained by the Office of Environmental Services on <<Date>>, 200x. A proposed permit was also submitted to U.S. EPA Region VI on <<Date>>, 200x. All comments will be considered prior to a final permit decision.

PRELIMINARY DETERMINATION SUMMARY

Geismar Site VCM-E Plant
 Agency Interest No.: 1138
 Westlake Vinyls Co LP
 Geismar, Ascension Parish, Louisiana
 PSD-LA-734
 May 9, 2008

I. APPLICANT

Westlake Vinyls Co LP
 PO Box 228
 Geismar, LA 70734

II. LOCATION

Westlake Vinyls Co LP is located at 36045 Hwy 30, Geismar, Louisiana. Approximate UTM coordinates are 667.46 kilometers East, 3358.39 kilometers North, zone 15.

III. PROJECT DESCRIPTION

The VCM-E (Vinyl Chloride Monomer via Ethylene) plant is actually made up of three separate operating units. Two of the units produce ethylene dichloride (EDC) and one produces vinyl chloride monomer (VCM). These units are referred to as the direct chlorination unit and the oxychlorination unit (to make EDC), and the vinyl chloride unit (for VCM).

In the EDC direct chlorination unit, ethylene and chlorine are reacted in the liquid phase to form crude ethylene dichloride. The crude EDC is mixed with recycled EDC from the vinyl chloride unit and is then processed in a portion of this unit referred to as the EDC purification section. The first part of the EDC purification section is concerned with water washing and neutralization of the crude EDC. Next the neutralized EDC is fractionally distilled to first remove low boiling impurities plus water and then to remove high boiling impurities.

Presently in the oxychlorination unit, HCl, oxygen, and ethylene are combined to form EDC and water. The EDC produced in this unit is sent to the EDC purification section previously mentioned where it is neutralized and then purified by fractional distillation. The water produced in the oxychlorinated reaction is used as the washing agent for the water washing operation in the EDC purification section. The wash water is combined with the caustic soda solution from the EDC neutralization process. The combined aqueous stream is steam stripped and finally discharged through the biological wastewater treatment with downstream air stripping prior to discharge via an NPDES permitted outfall.

Purified, anhydrous EDC is either further processed to manufacture vinyl chloride or stored as a product for sale. The material that is further processed is thermally dehydrogenated (cracked) in the vinyl chloride unit to form hydrogen chloride (HCl) and VCM. About 50-

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60% of the EDC fed to the EDC cracking furnace is cracked. In the purification section of the vinyl chloride unit, the HCl is isolated and recycled to the oxychlorination unit. The vinyl chloride product is purified and sent to storage.

Process Vents from the EDC and VCM-E units are sent to the incinerator for destruction of organic compounds. The gas from the incinerator is then sent through a quench scrubber and a caustic scrubber to remove HCl before the gas is released to the atmosphere. If the primary incinerator goes off line for any reason, the secondary incinerator will immediately go into service to prevent release of untreated process vents to the atmosphere.

This major modification is for the following changes for the VCM-E Plant:

1. Adding a new primary incinerator, EQT0126;
2. Replacing the existing secondary incinerator with the existing primary incinerator, EQT0127; and

The combined firing rate of the new primary incinerator with the existing primary incinerator will be increased to a total of 100 MMBtu/hr; whereas the combined firing rate is currently permitted at 67.7 MMBtu/hr. The new primary incinerator will use state-of-art technology including specially designed burner tips and will enhance the quality of products (VCM, HCl, and EDC) by ensuring continuous availability of an incinerator to control vent gas emissions.

The increase in NO_x emissions related to the project triggers PSD and Non-Attainment New Source Review (NNSR).

Estimated emissions, in tons per year, are as follows:

<u>Pollutant</u>	<u>Baseline Actual Emissions</u>	<u>Project Increase/PTE</u>	<u>Contemporaneous Changes</u>	<u>Net Emissions Increase</u>	<u>PSD/NNSR de minimis</u>	<u>Review required?</u>
PM ₁₀	0.25	+0.92	-	+0.92	15/NA	No
SO ₂	0.02	+0.07	-	+0.07	40/NA	No
NO _x	3.31	+99.80	+16.40	+116.20	40/25	Yes
CO	2.78	+41.08	-	+41.08	100/NA	No
VOC	0.18	+11.40	-	+11.40	40/25	No

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IV. SOURCE IMPACT ANALYSIS

A proposed net increase in the emission rate of a regulated pollutant above de minimis levels for new major or modified major stationary sources requires review under Prevention of Significant Deterioration regulations, 40 CFR 52.21. PSD review entails the following analyses:

- A. A determination of the Best Available Control Technology (BACT);
- B. An analysis of the existing air quality and a determination of whether or not preconstruction or postconstruction monitoring will be required;
- C. An analysis of the source's impact on total air quality to ensure compliance with the National Ambient Air Quality Standards (NAAQS);
- D. An analysis of the PSD increment consumption;
- E. An analysis of the source related growth impacts;
- F. An analysis of source related growth impacts on soils, vegetation, and visibility;
- G. A Class I Area impact analysis; and
- H. An analysis of the impact of toxic compound emissions.

A. BEST AVAILABLE CONTROL TECHNOLOGY

Under current PSD regulations, an analysis of "top down" BACT is required for the control of each regulated pollutant emitted from a modified major stationary in excess of the specified significant emission rates. The top down approach to the BACT process involves determining the most stringent control technique available for a similar or identical source. If it can be shown that this level of control is infeasible based on technical, environmental, energy, and/or cost considerations, then it is rejected and the next most stringent level of control is determined and similarly evaluated. This process continues until a control level is arrived at which cannot be eliminated for any technical, environmental, or economic reason. A technically feasible control strategy is one that has been demonstrated to function efficiently on identical or similar processes. Additionally, BACT shall not result in emissions of any pollutant which would exceed any applicable standard under 40 CFR Parts 60 and 61.

For this project, BACT analyses are required for NOx emissions. WVC will control NOx emissions to a degree equivalent to the Lowest Achievable Emission Rates (LAER) to fulfill BACT requirements of the PSD program.

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BACT analyses for NO_x

For the proposed new primary incinerator, the regulated pollutant emitted in excess of the significant emission rate is NO_x. To identify process and/or add-on control alternatives potentially applicable to the incinerator, the Reasonable Available Control Technology (RACT)/BACT/Lowest Achievable Emission Rate (LAER) Clearinghouse was reviewed. The New and Emerging Environmental Technologies (NEET) database was also reviewed. The technologies identified for incinerators and thermal oxidizers are listed below in order from most to least stringent.

- Selective Catalytic Reduction
- Selective Non-Catalytic Reduction
- Flue Gas Recirculation
- Low NO_x Burners
- Good Combustion Practices

The Louisiana state implementation plan (SIP) was reviewed as well as the SIP's from several other states with similar categories of major sources. The review included SIP's from the South Coast Air Management District in California and the Houston area in Texas. None of these documents include regulations which are applicable to incinerators or thermal oxidizers.

Each technology was then evaluated for technical feasibility. This evaluation is discussed in detail for each technology.

Selective Catalytic Reduction

Selective catalytic reduction (SCR) is used on fossil fuel fired sources to reduce NO_x emissions. Only one incinerator in chlorinated waste gas vents service was found in the Clearinghouse search that has proposed SCR technology for NO_x control. This incinerator is not yet in service so this technology cannot be considered "achieved". SCR is a post-combustion gas treatment applied to reduce NO_x to nitrogen, water, and oxygen. Ammonia is injected into the gas stream near the economizer and upstream of the catalyst bed. The catalyst lowers the activation energy of the NO_x decomposition reaction. An ammonium salt intermediate is formed at the catalyst surface and subsequently decomposes to nitrogen and water. SCR systems typically have a NO_x control efficiency of 70% to 90% for fossil fuel utility boilers. SCR systems operate in a temperature range of 500° to 1200° F.

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SCR system performance is affected by reaction temperature range, residence time, amount of ammonia slip, particulate matter in the gas stream, catalyst activity, pressure drop across the catalyst deactivation.

In the WVC application, the chlorinated vent gases are burned in the incinerator. The vent gases exiting the incinerator are then cooled to 500° F in the boiler. The gases then pass through a quench absorber to remove the majority of the hydrogen chloride (HCl). A caustic scrubber removes most of the remaining HCl. These processes lower the temperature of the gas to approximately 155° F. SCR systems are typically installed at the exit of the combustion equipment to meet the required operating temperature for optimum catalyst activity. In this application, a SCR system cannot be installed at the exit of the WVC incinerator and upstream of the HCl removal systems for two reasons. Chlorine is a known catalyst poison; the chlorine in the stream will significantly reduce the active life of the catalyst. The chlorine will react with the ammonia which is injected into the gas stream to produce ammonia chloride. This will interfere with the NO_x reduction thereby reducing the effectiveness of the system.

If a SCR system were to be installed downstream of the caustic scrubber after the majority of the chlorine in the stream has been removed, the gas would have to be reheated back up to optimum reaction temperature. This would require a gas fired heater which would itself generate combustion emissions including NO_x while using additional energy in the form of natural gas. Also, the incinerator area at the WVC site has limited available space. SCR systems are large and thus the SCR would have to be installed in another area of the facility. This would require fans and ductwork to move the gas to the SCR unit with the accompanying heat loss. Thus, additional energy would be required to get the gas to the SCR system at the appropriate temperature. In conclusion, WVC does not consider the SCR system to be technically feasible for the WVC incinerator. No SCR system is presently operating in chlorinated vents service. Additionally, a SCR system for the WVC site would require additional energy use and would generate additional emissions of both criteria and toxic pollutants. Installation of an SCR for further treatment of the waste gas stream would result in an increase in NO_x emissions by 8.5 tpy in a addition to the proposed project increase.

Selective Non-Catalytic Reduction

Selective Non-Catalytic Reduction (SNCR) is also used on fossil fuel fired sources to reduce NO_x emissions. SNCR systems inject ammonia or urea directly into the firebox of the unit to react with the NO_x formed in the combustion process. The resulting product of the chemical reaction is elemental nitrogen, carbon dioxide, and water. This

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reaction requires a temperature of 1600° F to 2100° F. As with the SCR system, the chlorine must be removed from the stream before injecting the ammonia or urea to prevent the production of ammonium chloride. Additionally, the SNCR system requires even higher temperatures than the SCR system for NO_x reduction. Thus, the SNCR system is not technically feasible for the same reasons as discussed for the SCR technology.

Flue Gas Recirculation

Flue gas recirculation (FGR) reduces the temperature in the flame zone by diluting the oxygen content of the combustion air and by causing heat to be diluted in a greater mass of flue gas. This reduction in temperature lowers the NO_x generation. Typical reductions in NO_x are 40 to 50%. However, in the incinerator, high temperatures are necessary to completely oxidize the chlorinated organic chemicals in the waste gas stream. Additionally, the presence of chlorine and HCl creates a very corrosive environment in the recirculated flue gas ductwork. Thus, FGR is not technically feasible in chlorinated waste gas service.

Low NO_x Burners

Low NO_x burners reduce NO_x formation by controlling the mixing of the fuel and combustion air to create chemical reaction zones within the flame. Low NO_x burners typically reduce NO_x emissions by 30 to 65%. In the WVC application, there are wide variations in the composition and the flow rate of the two waste streams to be combusted. A traditional staged air or staged fuel gas burner will not work to completely combust the hydrocarbon in the waste stream. Additionally, with the wide variation in the composition of waste gas, these traditional burners will not operate in a stable fashion. The burner on the new incinerator has been designed to produce the lowest NO_x possible for this system and is considered as LAER. The NO_x emissions are estimated to be 0.2 lb/MMBtu when firing natural gas and 0.3 lb/MMBtu when firing waste gas.

Good Combustion Practices

Good combustion practices reduce NO_x by ensuring that the incinerator is operating within the designed operating range. One important parameter is excess air. By optimizing the amount of air used for combustion, complete oxidation of the waste streams is assured while minimizing the production of NO_x. Excess air is also optimized by employing divided air streams on the burner to provide air combustion and flam/firebox coolant. WVC closely monitors stack gas oxygen to insure that minimal amounts of excess air are added to the combustion process. Another practice which

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minimizes NO_x production is to not preheat the incoming air. This lowers NO_x formation by lowering the combustion temperature. WVC does not preheat the incoming air. WVC also provides all operators working on the incinerator with proper training and maintains detailed operating procedures for the incinerator. Additionally, the equipment is maintained following a preventative maintenance schedule to ensure instrumentation and controls are operating properly.

B. ANALYSIS OF EXISTING AIR QUALITY

Prevention of Significant Deterioration regulations require an analysis of existing air quality for those pollutants to be emitted in significant amounts from a proposed major modification. NO_x is the pollutant of concern in this case.

Prevention of Significant Deterioration regulations require an analysis of existing air quality for those pollutants emitted in significant amounts from a proposed major modification.

The PSD modeling consists of two separate phases, the PSD screening analysis (Significant Impact, Area of Impact, and Preconstruction Monitoring Analyses) and the full impact analysis (i.e., NAAQS and PSD Increment Analyses). The Significant Impact Analysis (SIA) determines the area of impact (AOI) associated with the facility emissions relative to the significant air quality levels. Once an AOI has been established, PSD Increment and NAAQS analyses are required to demonstrate that air quality that air quality concentrations are maintained in accordance with LDEQ and PSD mandated levels.

Based on the results for year 2001 (worst-case), the maximum annual off-site NO_x concentration is projected to be 2.28 µg/m³. This projected concentration is above the annual significance level for ambient NO_x concentration. Therefore, a full impacts analysis (i.e. NAAQS and PSD Increment modeling) is required. The AOI impact was determined to extend to approximately 0.9 km.

In addition to the project-related and contemporaneous NO_x emission sources, WVC NO_x emission sources not included in the PSD screening analysis and all major NO_x emission sources within the AOI plus 50 km were included in the subsequent NAAQS analysis. These sources were modeled at their maximum allowable emission rates.

Based on the results for year 2002 being the worst-case, the maximum annual off-site NO_x concentration is projected as 89.61 µg/m³, which is below the NAAQS concentration threshold level of NO_x.

For the PSD Increment analysis, the same off-site sources were included in the models. However, with the exception of project related emission sources and proposed facility sources not yet built, the emission rates for the increment analysis are actual emission

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rates as opposed to maximum allowable emission rates. Based on the results for 2000 through 2004, the maximum annual off-site NO_x concentration is projected to be 0.00 µg/m³, which is below the PSD Increment threshold for NO_x.

In summary, the proposed project achieves compliance with all ambient air quality standards.

C. NATIONAL AMBIENT AIR QUALITY STANDARDS (NAAQS) ANALYSIS

For significant impacts, a NAAQS modeling analysis has been completed. The NAAQS analysis consists of all facility sources and all off-property sources modeled with maximum allowable NO_x emission rates. The off-site inventory included those sources from facilities located within the AOI and those sources from located within the AOI and those sources located up to 50 km beyond the AOI. Because the potential maximum AOI radius is limited to 50 km, the potential maximum radius for off-site sources to be included in the NAAQS analysis is 100 km.

A listing of the appropriate NO_x emission sources to be modeled was obtained from the LDEQ Emission Inventory Survey (EIS) retrieval. In accordance with the modeling protocol submitted to LDEQ, the data was reviewed for missing/incorrect data and revised accordingly. All changes have been documented and are available upon request.

The maximum-modeled concentrations from these sources were adjusted based on the background concentration obtained from the nearest ambient air monitoring station (Dutchtown) and compared to the NAAQS concentration. If the concentration predicted by the model, at the location of the ambient air monitoring station was higher than the concentration obtained from the monitoring station, no adjustment was made. If the concentration predicted by the model was lower than the concentration from the monitoring station, the modeled concentration was subtracted from the concentration from the monitoring station and the result was added back to the highest concentration to determine maximum predicted concentration. When the maximum concentration was determined to be less than the NAAQS, the facility was deemed acceptable relative to this standard and the analysis was complete.

D. PSD INCREMENT ANALYSIS

A PSD Increment analysis has been completed. The purpose of the PSD Increment analysis is to show that the project will neither cause nor contribute to a predicted PSD Increment exceedance. All facility sources and off-site sources from the inventory within the AOI were included in the PSD increment analysis.

Project-related and proposed facility emission sources were modeled based on their post-

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project allowable NOX emission rates versus baseline actual (February 8, 1988 for NOX). Remaining facility and off-property sources were modeled with the change in actual emissions since the baseline data. LDEQ EIS retrievals of baseline emissions and current actual emissions were obtained for off-site sources and used in the PSD Increment analysis along with the stack parameters provided in these retrievals. The actual emission rates utilized for facility NO_x emission sources were based on the average of their 2004/2005 actual emissions. As for the NAAQS analysis, per the modeling protocol submitted to LDEQ, the baseline data was reviewed and revised accordingly. WVC will provide all supporting documentation upon LDEQ's request.

The baseline emission rates were modeled as negative emission rates and the current emission rates were modeled as positive emission rates. The maximum modeled concentration from this analysis was compared to the PSD Class II Increment level. Since the increment was not completely consumed (i.e., the PSD Class II levels are not exceeded), the project is deemed acceptable relative to this standard.

E. SOURCE RELATED GROWTH IMPACTS

Operation of this facility is not expected to have any significant effect on residential growth or industrial/commercial development in the area of the facility. No significant net change in employment, population, or housing will be associated with the project. As a result, there will not be any significant increases in pollutant emissions indirectly associated with Westlake Vinyls Co LP's proposal. Secondary growth effects will include temporary construction related jobs.

F. SOILS, VEGETATION, AND VISIBILITY IMPACTS

There will be no significant impact on area soils, vegetation, or visibility.

G. CLASS I AREA IMPACTS

Louisiana's Breton Wildlife Refuge, the nearest Class I area, is over 100 kilometers from the site, precluding any significant impact.

H. TOXIC EMISSIONS IMPACT

The selection of control technology based on the BACT analysis did not include consideration of control of toxic emissions.

PRELIMINARY DETERMINATION SUMMARY

**Geismar Site VCM-E Plant
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V. CONCLUSION

The Air Permits Division has made a preliminary determination to approve the construction of the new primary incinerator at the Westlake Vinyls Co LP near Geismar, in Ascension Parish, Louisiana, subject to the attached specific and general conditions. In the event of a discrepancy in the provisions found in the application and those in this Preliminary Determination Summary, the Preliminary Determination Summary shall prevail.

SPECIFIC CONDITIONS

Westlake Vinyls Co LP – Geismar Site VCM-E Plant

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Westlake Vinyls Co LP

Geismar, Ascension Parish, Louisiana

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1. The permittee is authorized to operate in conformity with the specifications submitted to the Louisiana Department of Environmental Quality (LDEQ) as analyzed in LDEQ's document entitled "Preliminary Determination Summary" dated April 11, 2008, and subject to the following emissions limitations and other specified conditions. Specifications submitted are contained in the application and Emission Inventory Questionnaire dated December 14, 2007.

MAXIMUM ALLOWABLE EMISSIONS RATES

ID No.	Description		PM ₁₀	SO ₂	NO _x	CO	VOC
EQT0015	74-06 VCM Plant --	lb/MM Btu	-	-	0.3	-	-
	Vent Incinerator	lb/hr	0.58	0.05	27.65	13.47	3.87
	Scrubber	TPY	1.18	0.09	103.11	43.87	15.96

2. Permittee shall comply with a streamlined equipment leaks monitoring program. Compliance with the streamlined program in accordance with this specific condition shall serve to comply with each of the fugitive emission monitoring programs being streamlined, as indicated in the following table. Noncompliance with the streamlined program in accordance with this specific condition may subject the permittee to enforcement action for one of the applicable fugitive emissions programs.
 - a. Streamlined program shall be applicable to the combined universe of components subject to any of the programs being streamlined. Any component type which does not require periodic monitoring under the overall most stringent program shall be monitored as required by the most stringent program being streamlined and will not be exempted. The streamlined program will include any exemptions based on size or component available in any of the programs being streamlined.
 - b. Leak definitions and monitoring frequency shall be used based on the overall most stringent program. Percent leaker performance shall be calculated using the provisions of the overall most stringent program. Annual monitoring shall be defined as once every four quarters. Some allowance may be made in the first year on the streamlined program in order to allow for transition from existing monitoring schedules.
 - c. Permittee shall comply with recordkeeping and reporting requirements of the overall most stringent program. Semiannual reports shall be submitted on September 30 and March 31, to cover the periods from January 1 through June 30 and July 1 through December 31, respectively. The semiannual reports shall include any monitoring performed within the reporting period.
 - d. The streamlined program shall not be used to replace the continuous monitoring requirements of 40 CFR 61.65(b)(8)(i).

SPECIFIC CONDITIONS**Westlake Vinyls Co LP – Geismar Site VCM-E Plant****Agency Interest No.: 1138****Westlake Vinyls Co LP****Geismar, Ascension Parish, Louisiana****PSD-LA-734**

Unit or Plant Site	Programs Streamlined	Stream Applicability	Overall Most Stringent Program
VCM-E Plant	40 CFR 63 Subpart H	5% VOHAP	40 CFR 63 Subpart H
	LAC 33:III.2122	10% VOC	
	LAC 33:III.5109	TAP	

LOUISIANA AIR EMISSION PERMIT GENERAL CONDITIONS

- I. This permit is issued on the basis of the emissions reported in the application for approval of emissions and in no way guarantees that the design scheme presented will be capable of controlling the emissions to the type and quantities stated. Failure to install, properly operate and/or maintain all proposed control measures and/or equipment as specified in the application and supplemental information shall be considered a violation of the permit and LAC 33:III.501. If the emissions are determined to be greater than those allowed by the permit (e.g. during the shakedown period for new or modified equipment) or if proposed control measures and/or equipment are not installed or do not perform according to design efficiency, an application to modify the permit must be submitted. All terms and conditions of this permit shall remain in effect unless and until revised by the permitting authority.
- II. The permittee is subject to all applicable provisions of the Louisiana Air Quality Regulations. Violation of the terms and conditions of the permit constitutes a violation of these regulations.
- III. The Emission Rates for Criteria Pollutants, Emission Rates for TAP/HAP & Other Pollutants, and Specific Requirements sections or, where included, Emission Inventory Questionnaire sheets establish the emission limitations and are a part of the permit. Any operating limitations are noted in the Specific Requirements or, where included, Tables 2 and 3 of the permit. The synopsis is based on the application and Emission Inventory Questionnaire dated December 14, 2007, along with supplemental information dated April 10, 2008, May 8, 2008, and May 22, 2008.
- IV. This permit shall become invalid, for the sources not constructed, if:
 - A. Construction is not commenced, or binding agreements or contractual obligations to undertake a program of construction of the project are not entered into, within two (2) years (18 months for PSD permits) after issuance of this permit, or;
 - B. If construction is discontinued for a period of two (2) years (18 months for PSD permits) or more.

The administrative authority may extend this time period upon a satisfactory showing that an extension is justified.

This provision does not apply to the time period between construction of the approved phases of a phased construction project. However, each phase must commence construction within two (2) years (18 months for PSD permits) of its projected and approved commencement date.
- V. The permittee shall submit semiannual reports of progress outlining the status of construction, noting any design changes, modifications or alterations in the construction schedule which have or may have an effect on the emission rates or ambient air quality levels. These reports shall continue to be submitted until such time as construction is certified as being complete. Furthermore, for any significant change in the design, prior approval shall be obtained from the Office of Environmental Services, Air Permits Division.
- VI. The permittee shall notify the Department of Environmental Quality, Office of Environmental Services, Air Permits Division within ten (10) calendar days from the date that construction is certified as complete and the estimated date of start-up of operation. The appropriate Regional Office shall also be so notified within the same time frame.
- VII. Any emissions testing performed for purposes of demonstrating compliance with the limitations set forth in paragraph III shall be conducted in accordance with the methods described in the Specific Conditions and, where included, Tables 1, 2, 3, 4, and 5 of this permit. Any deviation from or modification of the methods used for testing shall have prior

LOUISIANA AIR EMISSION PERMIT GENERAL CONDITIONS

approval from the Office of Environmental Assessment, Air Quality Assessment Division.

- VIII. The emission testing described in paragraph VII above, or established in the specific conditions of this permit, shall be conducted within sixty (60) days after achieving normal production rate or after the end of the shakedown period, but in no event later than 180 days after initial start-up (or restart-up after modification). The Office of Environmental Assessment, Air Quality Assessment Division shall be notified at least (30) days prior to testing and shall be given the opportunity to conduct a pretest meeting and observe the emission testing. The test results shall be submitted to the Air Quality Assessment Division within sixty (60) days after the complete testing. As required by LAC 33:III.913, the permittee shall provide necessary sampling ports in stacks or ducts and such other safe and proper sampling and testing facilities for proper determination of the emission limits.
- IX. The permittee shall, within 180 days after start-up and shakedown of each project or unit, report to the Office of Environmental Compliance, Enforcement Division any significant difference in operating emission rates as compared to those limitations specified in paragraph III. This report shall also include, but not be limited to, malfunctions and upsets. A permit modification shall be submitted, if necessary, as required in Condition I.
- X. The permittee shall retain records of all information resulting from monitoring activities and information indicating operating parameters as specified in the specific conditions of this permit for a minimum of at least five (5) years.
- XI. If for any reason the permittee does not comply with, or will not be able to comply with, the emission limitations specified in this permit, the permittee shall provide the Office of Environmental Compliance, Enforcement Division with a written report as specified below.
- A. A written report shall be submitted within 7 days of any emission in excess of permit requirements by an amount greater than the Reportable Quantity established for that pollutant in LAC 33.I.Chapter 39.
 - B. A written report shall be submitted within 7 days of the initial occurrence of any emission in excess of permit requirements, regardless of the amount, where such emission occurs over a period of seven days or longer.
 - C. A written report shall be submitted quarterly to address all emission limitation exceedances not included in paragraphs A or B above. The schedule for submittal of quarterly reports shall be no later than the dates specified below for any emission limitation exceedances occurring during the corresponding specified calendar quarter:
 - 1. Report by June 30 to cover January through March
 - 2. Report by September 30 to cover April through June
 - 3. Report by December 31 to cover July through September
 - 4. Report by March 31 to cover October through December
 - D. Each report submitted in accordance with this condition shall contain the following information:
 - 1. Description of noncomplying emission(s);
 - 2. Cause of noncompliance;
 - 3. Anticipated time the noncompliance is expected to continue, or if corrected, the duration of the period of noncompliance;
 - 4. Steps taken by the permittee to reduce and eliminate the noncomplying emissions; and

LOUISIANA AIR EMISSION PERMIT GENERAL CONDITIONS

5. Steps taken by the permittee to prevent recurrences of the noncomplying emissions.
- E. Any written report submitted in advance of the timeframes specified above, in accordance with an applicable regulation, may serve to meet the reporting requirements of this condition provided all information specified above is included. For Part 70 sources, reports submitted in accordance with Part 70 General Condition R shall serve to meet the requirements of this condition provided all specified information is included. Reporting under this condition does not relieve the permittee from the reporting requirements of any applicable regulation, including LAC 33.I.Chapter 39, LAC 33.III.Chapter 9, and LAC 33.III.5107.
- XII. Permittee shall allow the authorized officers and employees of the Department of Environmental Quality, at all reasonable times and upon presentation of identification, to:
 - A. Enter upon the permittee's premises where regulated facilities are located, regulated activities are conducted or where records required under this permit are kept;
 - B. Have access to and copy any records that are required to be kept under the terms and conditions of this permit, the Louisiana Air Quality Regulations, or the Act;
 - C. Inspect any facilities, equipment (including monitoring methods and an operation and maintenance inspection), or operations regulated under this permit; and
 - D. Sample or monitor, for the purpose of assuring compliance with this permit or as otherwise authorized by the Act or regulations adopted thereunder, any substances or parameters at any location.
 - XIII. If samples are taken under Section XII.D. above, the officer or employee obtaining such samples shall give the owner, operator or agent in charge a receipt describing the sample obtained. If requested prior to leaving the premises, a portion of each sample equal in volume or weight to the portion retained shall be given to the owner, operator or agent in charge. If an analysis is made of such samples, a copy of the analysis shall be furnished promptly to the owner, operator or agency in charge.
 - XIV. The permittee shall allow authorized officers and employees of the Department of Environmental Quality, upon presentation of identification, to enter upon the permittee's premises to investigate potential or alleged violations of the Act or the rules and regulations adopted thereunder. In such investigations, the permittee shall be notified at the time entrance is requested of the nature of the suspected violation. Inspections under this subsection shall be limited to the aspects of alleged violations. However, this shall not in any way preclude prosecution of all violations found.
 - XV. The permittee shall comply with the reporting requirements specified under LAC 33:III.919 as well as notification requirements specified under LAC 33:III.927.
 - XVI. In the event of any change in ownership of the source described in this permit, the permittee and the succeeding owner shall notify the Office of Environmental Services in accordance with LAC 33:I.Chapter 19.Facility Name and Ownership/Operator Changes Process.
 - XVII. Very small emissions to the air resulting from routine operations, that are predictable, expected, periodic, and quantifiable and that are submitted by the permitted facility and approved by the Air Permits Division are considered authorized discharges. Approved activities are noted in the General Condition XVII Activities List of this permit. To be

LOUISIANA AIR EMISSION PERMIT GENERAL CONDITIONS

approved as an authorized discharge, these very small releases must:

1. Generally be less than 5 TPY
2. Be less than the minimum emission rate (MER)
3. Be scheduled daily, weekly, monthly, etc., or
4. Be necessary prior to plant startup or after shutdown [line or compressor pressuring/depressuring for example]

These releases are not included in the permit totals because they are small and will have an insignificant impact on air quality. This general condition does not authorize the maintenance of a nuisance, or a danger to public health and safety. The permitted facility must comply with all applicable requirements, including release reporting under LAC 33:I.3901.

- XVIII. Provisions of this permit may be appealed in writing pursuant to La. R.S. 30:2024(A) within 30 days from receipt of the permit. Only those provisions specifically appealed will be suspended by a request for hearing, unless the secretary or the assistant secretary elects to suspend other provisions as well. Construction cannot proceed except as specifically approved by the secretary or assistant secretary. A request for hearing must be sent to the following:

Attention: Office of the Secretary, Legal Services Division
La. Dept. of Environmental Quality
Post Office Box 4302
Baton Rouge, Louisiana 70821-4302

- XIX. For Part 70 sources, certain Part 70 general conditions may duplicate or conflict with state general conditions. To the extent that any Part 70 conditions conflict with state general conditions, then the Part 70 general conditions control. To the extent that any Part 70 general conditions duplicate any state general conditions, then such state and Part 70 provisions will be enforced as if there is only one condition rather than two conditions.

TABLE II: AIR QUALITY ANALYSIS SUMMARY

Westlake Vinyls Co LP
Agency Interest No.: 1138
Westlake Vinyls Co LP
Geismar, Ascension Parish, Louisiana
PSD-LA-734

Pollutant	Averaging Period	Preliminary Screening Concentration ($\mu\text{g}/\text{m}^3$)	Level of Significant Impact ($\mu\text{g}/\text{m}^3$)	Significant Monitoring Concentration ($\mu\text{g}/\text{m}^3$)	At the Monitoring Station		Background ($\mu\text{g}/\text{m}^3$)	Maximum Modeled Concentration ($\mu\text{g}/\text{m}^3$)	Modeled + Background Concentration ($\mu\text{g}/\text{m}^3$)	NAAQS ($\mu\text{g}/\text{m}^3$)	Modeled PSD Increment Consumption ($\mu\text{g}/\text{m}^3$)	Allowable Class II PSD Increment ($\mu\text{g}/\text{m}^3$)
					Monitored Values ($\mu\text{g}/\text{m}^3$)	Modeling results ($\mu\text{g}/\text{m}^3$)						
PM ₁₀	24-hour	NR	5	10	NR	NR	NR	NR	NR	150	NR	30
	Annual	NR	1	-	NR	NR	NR	NR	NR	50	NR	17
SO ₂	3-hour	NR	25	-	NR	NR	NR	NR	NR	1300	NR	512
	24-hour	NR	5	13	NR	NR	NR	NR	NR	365	NR	91
	Annual	NR	1	-	NR	NR	NR	NR	NR	80	NR	20
NO _x	Annual	2.28	1	14	30.45	NR	30.45	55.52	85.97	100	0.00	25
CO	1-hour	NR	2000	-	NR	NR	NR	NR	NR	40,000	NR	-
	8-hour	NR	500	575	NR	NR	NR	NR	NR	10,000	NR	-
Lead	3-month	NR	-	0.1	NR	NR	NR	NR	NR	1.5	-	-
NR = Not required.												